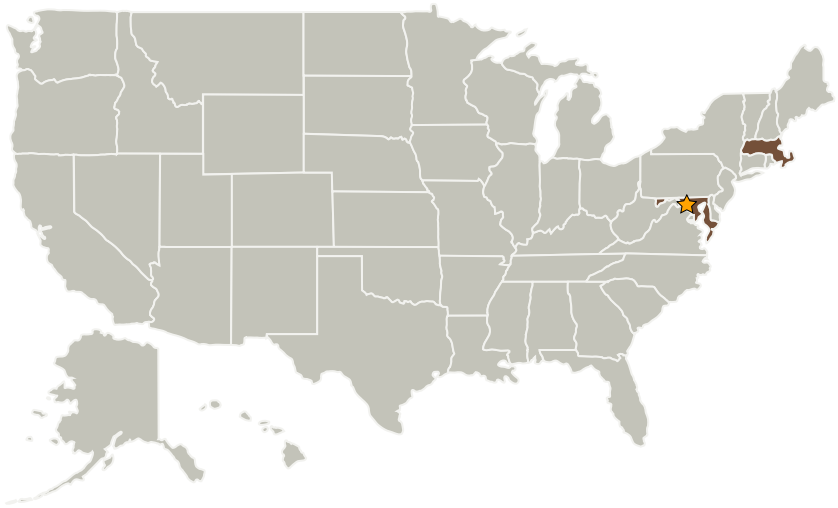
A Web-Based Airborne Remote Sensing Telemetry Server, Phase I

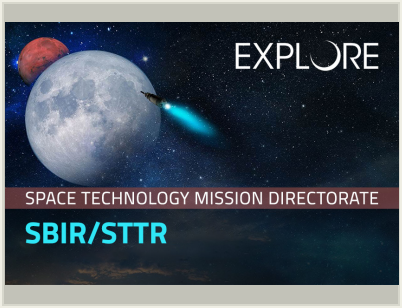
Completed Technology Project (2005 - 2006)

Project Introduction

A Web-based Airborne Remote Sensing Telemetry Server (WARSTS) is proposed to integrate UAV telemetry and web-technology into an innovative communication, command, control, and computer-network (C4) system for operational UAV remote sensing. WARSTS integrates two innovative subsystems: the Tracking Antenna Radio Link (TARL) and the Web-based Application Support System (WASS). TARL serves as the sensor gateway to WASS. It links a remotely deployed airborne sensor platform and ground control equipment by a high-speed peer-to-peer Wi-Fi link. TARL monitors airborne instruments and UAV operation status continuously while performing selective imaging data transmission. WASS processes the structured UAV platform position/attitude and imaging data and makes them visualizable through an integrated web-enabled application package in realtime. WARSTS features the following capabilities: (1) a realtime sensor fusion algorithm that combines inertial, GPS, magnetometer, and other sensor input to deliver precision airborne platform state vectors at a rate greater than 50 Hz; (2) a set of visualization tools that automatically generate the mapping area mosaic of the remote sensing UAV along with its 3D flight through animation; (3) human-UAV instrument interactive control; (4) hotspot realtime hyperspectral/multispectral data download; and finally (5) a fully featured web-based connectivity solution that speeds up information delivery.

Primary U.S. Work Locations and Key Partners





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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Goddard Space Flight Center (GSFC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Goddard Space Flight Center(GSFC)	Lead Organization	NASA Center	Greenbelt, Maryland
Flight Landata, Inc.	Supporting Organization	Industry	North Andover, Massachusetts

Primary U.S. Work Locations	
Maryland	Massachusetts

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Xiuhong Sun

Technology Areas

Primary:

- TX02 Flight Computing and Avionics
  - TX02.2 Avionics Systems and Subsystems
    - TX02.2.6 Data Acquisition Systems